



Navigating Vaccine Hesitancy

DR. VANESSA SLOTS

DEPARTMENT CHIEF GENERAL PEDIATRICS, RENOWN CHILDREN'S HOSPITAL

What is the problem?

- ▶ Vaccine coverage is not improving among children or adults
- ▶ Consistently miss public health goals
 - ▶ NV rates for most vaccine are below the national average
- ▶ Vaccine preventable diseases are increasing in the U.S.
 - ▶ Disneyland measles outbreak
 - ▶ Pertussis epidemic in California
 - ▶ Measles outbreak in Minnesota
- ▶ Popular messaging (internet, talk shows, blogs) question vaccine need and emphasize side effects

Hesitancy and Vaccines

- ▶ Vaccine Hesitancy
 - ▶ Intent to skip or delay at least 1 vaccine in accordance to the CDC schedule
 - ▶ Uncertainty as to whether a vaccine should be given
- ▶ Only 70% of children 19-35 months are up to date on routine immunizations
 - ▶ Gust et al (*Pediatrics* 2008) stated 28% of parents had doubts about vaccines
 - ▶ 2013 AAP Periodic Survey stated 87% of pediatricians reported encountering parents who delayed/refused vaccinations
 - ▶ 2006 survey showed 74.6%
- ▶ 0.7-3% of children in the US are completely unvaccinated and 13% of parents delay or select out of certain vaccines (Leask, *Pediatrics* 2015; 136(1))

Vaccine Confidence

- ▶ Trust in the safety, efficacy and reliability of immunizations.
- ▶ Trust in the provider.
 - ▶ Nearly 97% who accepted vaccines reported trusting their pediatrician's advice
 - ▶ 69% who delayed vaccines and 38% of those who refused vaccines reported trusting their pediatrician's advice

Parental Attitudes

Parent Type	Belief about Vaccines	Percentage of Parents
Immunization Advocates	Strongly agree vaccines are safe and necessary	33%
Go Along to Get Alongs	Agree vaccines are safe and necessary	26%
Health Advocate	Agree vaccines are necessary but less sure about safety	25%
Fence-sitters	Slightly agree vaccines are necessary and safe	13%
Worrieds	Slightly disagree that vaccines are necessary and strongly disagree that vaccines are safe	3%

(Gust, et al. *American Journal of Health Behavior*, 2005)

Models to Address Hesitancy

- ▶ Time consuming process
 - ▶ 53% spend 10-19 minutes addressing concerns
 - ▶ 8% spent more than 20 minutes
 - ▶ Decreased job satisfaction reported

Kempe et al. *American Journal of Preventative medicine*, 2011

- ▶ 80% of parents stated that their decision to vaccinate was positively influenced by their provider

Kennedy, et al. *Pediatrics*, 2010

Strong Recommendation

- ▶ Presumptive vs Participatory Recommendations
 - ▶ Presumptive – more likely to see parents accept vaccines
 - ▶ “Today your child is due for MMR and Varicella”
 - ▶ “It’s time for the annual flu vaccine. Your child is old enough to receive either the inactivated shot or the live nasal spray”
 - ▶ Participatory
 - ▶ “Do you want to vaccinate your child today”

Opel, et al. *Pediatrics*, 2013

CASE Framework

- ▶ C – Corroborate
 - ▶ Acknowledge parent/patient concern
- ▶ A – About me
 - ▶ What have you done to enhance your knowledge
- ▶ Science
 - ▶ Describe what the science says
- ▶ Explain/Advise
 - ▶ Give your advice based on the science

A WELL-CHILD EXAMPLE

A parent in your practice does not want his or her child to have the primary series of vaccines at the 2-month visit and is concerned about the number of vaccines the child will receive in the first year of life. The following is an example of an elevator pitch you might develop and reuse in your practice. Additional communication strategies for common parental concern scenarios are available in the CASE video presentation.²⁶

- **Corroborate.** “You are correct. Your child will receive more vaccine than you or I did. We both want the same things for your child—to remain healthy and disease free. I know you are concerned, but it is my job to help address your concerns.”
- **About me.** “We follow the CDC schedule because it is designed to protect your child when he or she is most susceptible to these diseases. I have spent many years getting education and training in health and medicine, including vaccination. My expertise is why you are here. I have read the recommendations carefully and studied the risks and benefits.”
- **Science.** “Although your child gets more shots today, technology advances allow for development

of vaccines using inactivated cells to generate an immune response. This immunological challenge is nothing compared with what your child fights off on a daily basis. An ear infection is a much more significant immune challenge than the vaccines I want to give to your child today.”

- **Explain/advise.** “I care about your son/daughter and do not want to practice substandard care. Your child needs to be fully vaccinated to protect against these diseases. I am fully vaccinated and my children are, too.”

Abbreviations: CASE, **C**orroborate, **A**bout me, **S**cience, **E**xplain/advise; CDC, Centers for Disease Control and Prevention. From Singer A, et al.²⁶

Common Concerns

- ▶ Safety of vaccines/vaccine schedule
- ▶ Overloading the immune system
- ▶ Natural disease provides better immunity
- ▶ Neurological side effects including Autism
- ▶ Preservatives

Vaccine Safety - Development

- ▶ Vaccines must demonstrate both safety and efficacy before licensures
 - ▶ Identification of a need for vaccine and understanding of immunity against that disease
 - ▶ Preclinical studies
 - ▶ Submission to FDA that describes the manufacturing and testing process, summarize the lab reports and describe proposed studies
 - ▶ Phase I, II and III trials

Vaccine Safety - Monitoring

- ▶ Long term safety must be monitored
 - ▶ Vaccine Adverse Events Reporting System (VAERS)
 - ▶ Voluntary, passive reporting
 - ▶ Vaccine Safety Datalink
 - ▶ Millions involved so can detect rare events
 - ▶ Post-Licensure Rapid Immunization Safety Monitoring System
 - ▶ Uses insurance claims of millions to monitor safety
 - ▶ Clinical Immunization Safety Assessment Project

Schedule Safety

- ▶ The current vaccine schedule is the ONLY recommended schedule
- ▶ Safety of the CDC administration schedule was strongly affirmed by Institute of Medicine in 2013 and the Agency for Healthcare Research and Quality
- ▶ No alternative vaccine schedules have been evaluated and found to provide better safety or efficacy

Overloading the Immune System

- ▶ An infants immune system has the capacity to respond to thousands of antigens at any given time
 - ▶ Exposed every day via toys, shopping carts, playground equipment
 - ▶ Immune system constantly replenished so can't be overwhelmed
- ▶ While the amount of immunizations have increased, children receive fewer antigens than their parents
- ▶ The response to multiple vaccines is similar to the response that occurs when vaccines are given separately

1900		1960		1980		2000	
Vaccine	Proteins	Vaccine	Proteins	Vaccine	Proteins	Vaccine	Proteins/Polysaccharides
<u>Smallpox</u>	~200	Smallpox	~200	Diphtheria	1	Diphtheria	1
Total	~200	Diphtheria	1	Tetanus	1	Tetanus	1
		Tetanus	1	WC-Pertussis	~3000	AC-Pertussis	2-5
		WC-Pertussis	~3000	Polio	15	Polio	15
		Polio	15	Measles	10	Measles	10
		Total	~3217	Mumps	9	Mumps	9
				Rubella	5	Rubella	5
				Total	~3041	Hib	2
						Varicella	69
						Pneumococcus	8
						Hepatitis B	1
						Total	123-126

Natural Immunity

- ▶ The cost of natural immunity can be severe including death
- ▶ Low immunization rates leads to decreased herd immunity and puts the entire community at risk
 - ▶ Herd immunity contingent on a significant proportion of the population in a community being immune
 - ▶ 30-95% of individuals required to achieve herd immunity depending on the disease

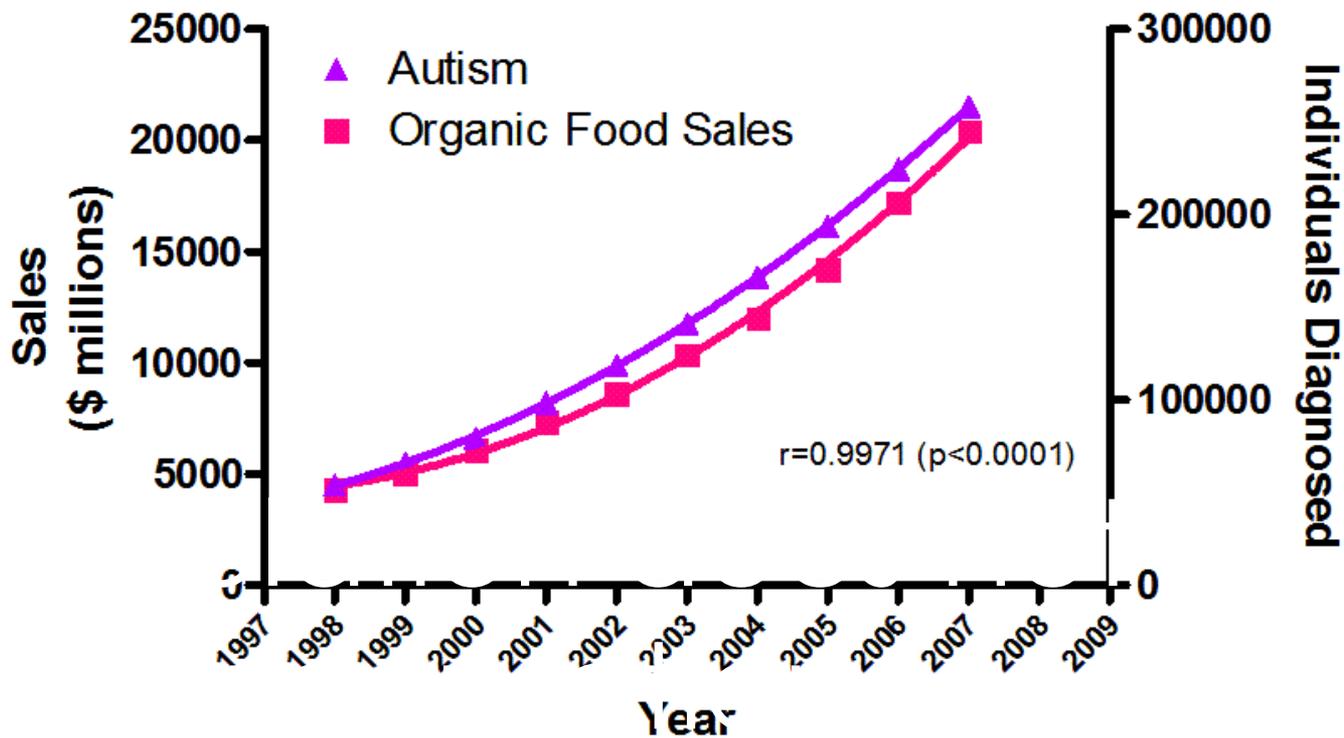
Neurological Side Effects

- ▶ 1995 Seizures removed from Vaccine Injury Compensation Program for DTaP
 - ▶ Golden demonstrated events were chance temporal associations
 - ▶ Miller performed repeated studies that showed no link and that original study provided incomplete data
 - ▶ Berkovic found multiple genetic causes of seizures

Offit, Paul. *Deadly Choices*

Neurodevelopment

- ▶ Institute of Medicine has shown that increased number of vaccines has NOT resulted in higher prevalence of neurodevelopment problems
- ▶ 2010 the 1998 report alleging the link between MMR and Autism was retracted
 - ▶ Several studies since have shown NO link between Autism and Vaccines
- ▶ Vaccines and autism show a TEMPORAL link not a CAUSAL link
 - ▶ MMR is given around the same time autism is often diagnosed/become apparent despite being present earlier



Sources: Organic Trade Association, 2011 Organic Industry Survey; U.S. Department of Education, Office of Special Education Programs, Data Analysis System (DANS), OMB# 1820-0043: "Children with Disabilities Receiving Special Education Under Part B of the Individuals

Preservatives

Thimerosal

- ▶ Thimerosal - mercury containing preservative that prevents bacterial and fungal contamination in vaccines
 - ▶ No link between Thimerosal and autism and was never in the MMR vaccine
 - ▶ Precautionary measures were taken given rising parental concerns and Thimerosal was removed from all individual dose vaccines in 2001

Preservatives

Aluminum Salts

- ▶ Aluminum salts - used to enhance the immune response from vaccines
 - ▶ Safety is well established
 - ▶ Abundant in our environment including in breast milk and all infant formula

Preservatives

Formaldehyde

- ▶ Formaldehyde - used to inactivate vaccines (Tetanus, diphtheria, influenza, polio)
 - ▶ Significantly diluted in the production process
 - ▶ Utilized in all humans to synthesize thymidine, purines and amino acids

To Dismiss or Not to Dismiss

- ▶ Dilemmas on both sides of the conversation
- ▶ Consistency, transparency and openness regarding vaccine policy is important
- ▶ “In general, pediatricians should avoid discharging patients from their practices solely because a parent refuses to immunize his or her child. However, when a substantial level of distrust develops, significant differences in the philosophy of care emerge, or poor quality of communication persists, the pediatrician may encourage the family to find another physician or practice.”

Diekema, *Pediatrics*, May 2005; 115(5)

Provider Resources

- ▶ CDC
 - ▶ www.cdc.gov/vaccines/hcp/conversations/index.html
- ▶ AAP have resources for vaccine conversations
 - ▶ *Communicating with Families and Parental Refusal to Vaccinate*
www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/immunization/Pages/communicating-parents.aspx
 - ▶ Navigating Vaccine Hesitancy www.aap.org/en-us/Documents/immunizations_hesitancy.pdf
- ▶ Immunization Action Coalition
 - ▶ immunize.org

Parent Resources

- ▶ Children's Hospital of Philadelphia Vaccine Education Center
<http://www.chop.edu/centers-programs/vaccine-education-center#.VrFWesdmbFl>
- ▶ vaccinateyourbaby.org
- ▶ Books and articles by Dr. Paul Offit